

National Type Evaluation Program
Certificate of Conformance
for Weighing and Measuring Devices

For:

Positive Displacement Meter
Retail Motor Fuel Dispenser
Models: PA024TC10, PA024NC10, PA024EC10
Generic Name: "C" Meter

Submitted by:

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Standard Features and Options

The "TC10" suffix indicates meters for use in electronic dispensers.

The "NC10" suffix indicates meters for use in mechanical dispensers.

The "EC10" suffix indicates electronically calibrated ("E-Cal") meters for use in electronic dispensers with electronic calibration capability.

"Standard" gallonage flow rate for one meter, one hose is ½ gpm to 12 gpm.

"High" gallonage flow rate for one meter, two hoses is 4 gpm to 30 gpm.

"Super High" gallonage flow rate for electronic dispensers only, two meters in parallel, two hoses is 8 gpm to 40 gpm.

Piston type (4) meter with a horizontal stroke, stainless steel piston cylinders, and aluminum alloy meter bodies and covers.

NOTES: Gasoline product applications are approved for use with the "Standard" configuration.

All flow rate configurations are approved for diesel fuel applications.

Option: An "M" stamped into the meter housing indicates methanol compatible meters (see Identification on Page 2).

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: December 1, 1999

Gilbert M. Ugiansky, Ph.D.
Chief, Office of Weights and Measures
Issue Date: March 23, 2000

Note: The National Institute of Standards and Technology does not "approve," "recommend," or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product by the Institute. (See NTEP Policy and Procedures.)

Marconi Commerce Systems Inc.
Positive Displacement Meter
Models: PA024TC10, PA024NC10, PA024EC10

Application: The meters are for use in approved and compatible retail motor fuel dispensers which dispense diesel, gasoline, 100% methanol (M-100), gasoline/ethanol, and gasoline/methanol blend types of products.

Identification: The meter has four distinct permanent identification marks.

- The letter "M" stamped into the meter housing immediately to the right of the calibration wheel indicates methanol compatible. Meters bearing the permanent identification marking of the letter "M" are standard production "C" meters having special seals and coatings formulated to operate with methanol and methanol blend products.
- The letter "C" is cast in the top of each piston protrusion.
- The Marconi Commerce Systems Inc. (formerly Gilbarco Inc.) logo and arrowed "G" are cast on the piston end caps.
- The last four alphanumeric characters of the meter model number are stamped on the side of the piston protrusion, immediately to the right of the calibration wheel. "TC10" indicates the meter interfaces with an electronic dispenser, "NC10" is an interface with a mechanical meter, and "EC10" indicates electronic calibration.

Sealing: The meter calibration wheel is accessed by removing a metal pin from the meter calibration wheel and turning the calibration wheel to increase or decrease the delivery amount. Undetected access to the meter calibration is prevented by threading a wire security seal through a hole in the metal pin and holes in the center and sides of the calibration wheel.

The calibration switch on dispensers equipped with the Model PA024EC10 meter is behind the locked panel on the front of the dispenser cabinet. To access the adjustment mechanism, remove the wire security seal that secures the hinged cover that fits over the switch. The switch is moved to the calibration position. A calibration code and the volume of the volumetric standard are entered on the keypad, next to the calibration switch. The product is then dispensed into the standard, a delivery error is determined in cubic inches, and the error value is entered on the keypad. The calibration switch is then returned to the normal operating position and the switch cover is sealed with a wire security seal. The Model PA024EC10 meter does not have a meter calibration wheel.

Dispensers equipped with the PA024EC10 meter with the electronic meter calibration are equipped with a memory chip that contains a battery. This enables calibration information to be maintained during the servicing of the unit without loss of the latest calibration information.

Test Conditions: This Certificate is issued based on information provided by the manufacturer to change the name of the company from the previous name, Gilbarco Inc., and to transfer ownership of the device covered under Certificate of Conformance Number 92-056A2 to Marconi Commerce Systems Inc. All institutional knowledge of the previous owner has been transferred to the new company. Test conditions for Certificate of Conformance Number 92-056A2 and its preceding Certificates are listed below for reference.

Certificate of Conformance Number 92-056A2: This Certificate superseded Certificate of Conformance Number 92-056A1 and was issued to include the PA024EC10 meter to the model series. The PA024EC10 meter was identical in its operation, design, and performance to previously tested PA024 meters. This Certificate was issued based on information provided by the manufacturer, an NTEP participating laboratory evaluation of the electronic calibration feature at the manufacturer's facility, and a previous evaluation of the electronic calibration feature (Certificate of Conformance Number 88-226A4).

Marconi Commerce Systems Inc.
Positive Displacement Meter
Models: PA024TC10, PA024NC10, PA024EC10

Test Conditions (Continued):

Certificate of Conformance Number 92-056A1: This Certificate superseded and consolidated Certificate of Conformance Numbers 88-003A3 and 92-056. This addendum was issued without any additional testing based on previous tests performed on the PA024TC10 and PA024NC10 devices.

Certificate of Conformance Number 92-056: The evaluation was performed on four meters in two dispensers, each at a different test site. The product was 85% methanol and 15% gasoline (M-85). The National Institute of Standards and Technology (NIST) and the California Division of Measurement Standards (DMS) waived the checklist 20 000 gallon throughput requirement due to the low volume demand for this specialized motor fuel. A permanence test of four months in service was agreed upon by NIST and DMS. Three tests at the Richmond site and two tests at the San Jose site were performed during the four-month period.

Certificate of Conformance Number 88-003A3: This Certificate superseded Certificate of Conformance Numbers 88-003, 88-003A, and 88-003A2 and was issued to consolidate and supersede the three Certificates referenced below.

Certificate of Conformance Number 88-003A2: Between October and November 1988, one "C" meter was evaluated using diesel fuel in a Gilbarco Inc. Highline dispenser (Model AC 4982A) with a satellite (Model AC4093) at "High" gallonage flow rates. The master and satellite were tested separately and in combination at flow rates near 13 gpm, 18 gpm, and 27 gpm. A subsequent examination was conducted 25 days after the initial examination and more than 46 000 gallons throughput. To achieve 30 gpm, a submerged pump rated at five horsepower and able to maintain 40 psi was required in the system.

Certificate of Conformance Number 88-003A: Between March and April 1988, two "C" meters in parallel were evaluated using diesel fuel in a Gilbarco Inc. Salesmaker, Model AC4982S1 (see Certificate of Conformance Number 88-226A2) and satellite dispensers at "Super High" gallonage flow rates. The master and satellite dispensers both had one hose. The master contained the two meters, two pulsers, and one register. The master and satellite dispensers were tested separately and in combination at flow rates near 8 gpm, 25 gpm, and 40 gpm. The subsequent examination was conducted 23 days after the initial examination when more than 40 000 gallons throughput had been dispensed from both meters combined.

Certificate of Conformance Number 88-003: Between November and December 1987, three "C" meters were evaluated in Gilbarco Inc. Salesmaker dispensers at "Standard" gallonage flow rates. Two meters dispensed unleaded gasoline and one diesel fuel. The subsequent examination was conducted 29 days after the initial examination when more than 20 000 gallons throughput had been dispensed on each product. Two tests were made at both maximum and minimum flow rates on each meter.

The results of these evaluations and information provided by the manufacturer indicate the meters comply with the applicable requirements of NIST Handbook 44.

Type Evaluation Criteria Used: NIST Handbook 44, 1999 Edition

Tested By: T. Scott (NC), L. Hockett (NC), T. Tatum (VA), and H. Oppermann (NIST) 88-003A3; T. Michel (CA) 92-056; R. Murdock (NC) 92-056A2

Information Reviewed By: J. Williams (NIST) 92-056A1 and 92-056A2; L. Sebring (NIST) and G. Newrock (NIST) 99-175